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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,225	08/06/2001	Stephen J. Plante	A0312/7410 WRM	8975
23628	7590	12/19/2005	EXAMINER	
WOLF GREENFIELD & SACKS, PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2211			TORRES, JOSEPH D	
			ART UNIT	PAPER NUMBER
			2133	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,225

Applicant(s)

PLANTE ET AL.

Examiner

Joseph D. Torres

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 18, 25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 18, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-6, 18, 25 and 26 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1- are rejected under 35 U.S.C. 102(b) as being anticipated by Amon; Yossi et al. (US 5742621 A, hereafter referred to as Amon).

35 U.S.C. 102(b) rejection of claims 1 and 18.

Amon teaches a processor (Figure 1 in Amon is a processor) comprising: a memory for storing instructions and operands for digital signal computations (see Program RAM and Instruction Cache 30 in Figure 1 of Amon); a program sequencer for generating instruction addresses for fetching selected ones of said instructions from said memory (DRAM and SRAM Bus Interface and Instruction Cache Control 42 of Amon); and a computation block (data arithmetic unit ALU 54 in Figures 1 and 2) comprising a register file for temporary storage of operands and results (Register File in Figure 2 of Amon)

and an accelerator (Figure 3 in Amon is an algorithm for carrying out Add/Compare/Select functions in ALU 54 of Figures 1 and 2; hence is an accelerator) for executing a trellis instruction that specifies locations of trellis state metrics for a time t_0 and transition metrics from time t_0 to time t_1 , said accelerator comprising an adder for adding a transition metric to a first state metric for time t_0 to provide a first value (Step 109 in Figure 3 of Amon is an adder for adding a transition metric to a first state metric for time t_0 to provide a first value) and an adder for subtracting the transition metric from a second state metric for time t_0 to provide a second value (Step 108 in Figure 3 of Amon is an adder for subtracting the transition metric from a second state metric for time t_0 to provide a second value), a comparator for determining the maximum of the corresponding first and second values for each trellis state (Step 110 in Figure 3 of Amon a comparator for determining the maximum of the corresponding first and second values for each trellis state) and a data selector for selecting the maximum of the corresponding first and second values for selected trellis states (Step 111 in Figure 3 of Amon is a data selector for selecting the maximum of the corresponding first and second values for selected trellis states).

Note: Amon teaches that the adding, subtracting, comparing and selecting operations are carried out in Figure 3 in response to a start command comprising trellis states PM1 and PM2 and transition metrics BM (Note: path metrics are state metrics and branch metrics are transition metrics) metrics to initiate the adding, subtracting, comparing and selecting operations. Such a start command is a Trellis instruction since it specifies trellis states PM1 and PM2 and transition metrics BM.

Note also that col. 2, lines 24-31 in Amon explicitly teaches “adding a branch metric to the first path metric to obtain a first result; subtracting the branch metric from the second path metric to obtain a second result; comparing the first result to the second result, and selecting which is greater to become a first survivor metric, and refetching the first previous path metric **during a third single clock cycle**” [Emphasis Added]. That is the adding, subtracting, comparing and selecting operations are all carried out in the third single clock cycle.

3. Claims 2-6, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amon; Yossi et al. (US 5742621 A, hereafter referred to as Amon) in view of Benedetto et al. (S. Benedetto, D. Divsalar, G. Montorsi, and F. Pollara; Soft-Output Decoding Algorithms in Iterative Decoding of Turbo Codes; TDA Progress Report 42-124, February 15, 1996; hereafter referred to as Benedetto).

35 U.S.C. 103(a) rejection of claims 2-6, 25 and 26.

Amon substantially teaches the claimed invention described in claims 1 and 18 (as rejected above).

However Amon does not explicitly teach the specific use of a MAP decoder typically used in turbo decoding (Note: all of the elements in claims 2-6 are elements of MAP decoders for turbo decoders).

Benedetto, in an analogous art, teaches a MAP decoder typically used in turbo decoding. Note: MAP decoders require the use of Add/Compare/Select functions as

taught in the appendix of Benedetto. One of ordinary skill in the art at the time the invention was made would have been highly motivated to use the Add/Compare/Select function as taught in Amon since as Amon teaches in the Abstract of Amon, the Add/Compare/Select function as taught in Amon reduces the number of clock cycles required for decoding hence accelerates the decoder.

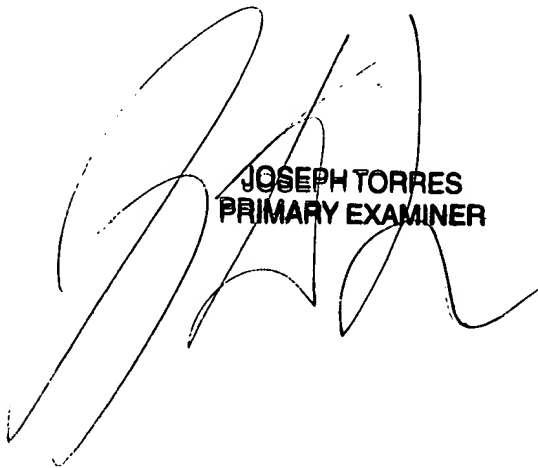
Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Amon with the teachings of Benedetto by including use of the Add/Compare/Select function as taught in Amon with the MAP decoder taught in Benedetto. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the Add/Compare/Select function as taught in Amon with the MAP decoder taught in Benedetto would have provided the opportunity to reduce the number of clock cycles required for decoding hence accelerating the decoder (see Abstract of Amon).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JOSEPH TORRES
PRIMARY EXAMINER

Joseph D. Torres, PhD
Primary Examiner
Art Unit 2133